



IFW

Docket No.: 0171-1271PUS1
(PATENT)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:
Takuji YOSHIMOTO et al.

Application No.: 10/577,438 ✓

Confirmation No.: N/A

Filed: April 27, 2006

Art Unit: N/A

For: CHARGE-TRANSPORTING ORGANIC
MATERIAL CONTAINING COMPOUND
HAVING 1, 4-DITHIIN RING

Examiner: Not Yet Assigned

L E T T E R

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Subsequent to the filing of the above-identified application on April 27, 2006, attached hereto is an English Translation of the International Preliminary Report on Patentability issued by the International Bureau on behalf of the International Searching Authority. Please make this document of record for the above-identified application.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or to credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17; particularly, extension of time fees.

Dated: October 3, 2006

Respectfully submitted,

By

Gerald M. Murphy, Jr.

Registration No.: 28,077

BIRCH, STEWART, KOLASCH & BIRCH, LLP

8110 Gatehouse Road

Suite 100 East

P.O. Box 747

Falls Church, Virginia 22040-0747

(703) 205-8000

Attorney for Applicant

Attachments

From the INTERNATIONAL BUREAU

PCT

NOTIFICATION OF TRANSMITTAL
OF COPIES OF TRANSLATION
OF THE INTERNATIONAL PRELIMINARY REPORT
ON PATENTABILITY
(CHAPTER I OR CHAPTER II
OF THE PATENT COOPERATION TREATY)
(PCT Rules 44bis.3(c) and 72.2)

Date of mailing (day/month/year)
03 August 2006 (03.08.2006)

Applicant's or agent's file reference
FAP-4028

International application No.
PCT/JP2004/016095

Applicant
NISSAN CHEMICAL INDUSTRIES, LTD. et al

To:

KOJIMA, Takashi
GINZA OHTSUKA Bldg. 2F
16-12, Ginza 2-chome
Chuo-ku, Tokyo 1040061
JAPON

**IMPORTANT NOTIFICATION****1. Transmittal of the translation to the applicant.**

- The International Bureau transmits herewith a copy of the English translation of the international preliminary report on patentability (Chapter I).
- The International Bureau transmits herewith a copy of the English translation of the international preliminary report on patentability (Chapter II).

2. Transmittal of the copy of the translation to the designated or elected Offices.

The International Bureau notifies the applicant that copies of that translation have been transmitted to the following designated or elected Offices requiring such translation:

EP, KR

The following designated or elected Offices, having waived the requirement for such a transmittal at this time, will receive copies of that translation from the International Bureau only upon their request:

AE, AG, AL, AM, AP, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EA, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OA, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW

3. Reminder regarding translation into (one of) the official language(s) of the elected Office(s).

The applicant is reminded that, where a translation of the international application must be furnished to an elected Office, that translation must contain a translation of any annexes to the international preliminary report on patentability (Chapter II).

It is the applicant's responsibility to prepare and furnish such translation directly to each elected Office concerned within the applicable time limit (Rule 74.1). See Volume II of the PCT Applicant's Guide for further details.

The International Bureau of WIPO
34, chemin des Colombettes
1211 Geneva 20, Switzerland

Facsimile No. +41 22 338 82 70

Authorized officer

Masashi Honda

Facsimile No. +41 22 338 82 70

PATENT COOPERATION TREATY
PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY
 (Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference FAP-4028	FOR FURTHER ACTION	
		See Form PCT/IPEA/416
International application No. PCT/JP2004/016095	International filing date (day/month/year) 29.10.2004	Priority date (day/month/year) 31.10.2003
International Patent Classification (IPC) or national classification and IPC H05B33/22 , C07D409/14, C09K11/06, H05B33/14		
Applicant NISSAN CHEMICAL INDUSTRIES, LTD.		

<ol style="list-style-type: none"> 1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36. 2. This REPORT consists of a total of 4 sheets, including this cover sheet. 3. This report is also accompanied by ANNEXES, comprising: <ol style="list-style-type: none"> a. <input type="checkbox"/> (<i>sent to the applicant and to the International Bureau</i>) a total of _____ sheets, as follows: <table border="0" style="width: 100%;"> <tr> <td style="width: 15%;"><input type="checkbox"/></td> <td>sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).</td> </tr> <tr> <td><input type="checkbox"/></td> <td>sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.</td> </tr> </table> b. <input type="checkbox"/> (<i>sent to the International Bureau only</i>) a total of (indicate type and number of electronic carrier(s)) _____ containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions). 4. This report contains indications relating to the following items: <table border="0" style="width: 100%;"> <tr> <td style="width: 15%;"><input checked="" type="checkbox"/></td> <td>Box No. I Basis of the report</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Box No. II Priority</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Box No. IV Lack of unity of invention</td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td>Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Box No. VI Certain documents cited</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Box No. VII Certain defects in the international application</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Box No. VIII Certain observations on the international application</td> </tr> </table> 		<input type="checkbox"/>	sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).	<input type="checkbox"/>	sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.	<input checked="" type="checkbox"/>	Box No. I Basis of the report	<input type="checkbox"/>	Box No. II Priority	<input type="checkbox"/>	Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability	<input type="checkbox"/>	Box No. IV Lack of unity of invention	<input checked="" type="checkbox"/>	Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement	<input type="checkbox"/>	Box No. VI Certain documents cited	<input type="checkbox"/>	Box No. VII Certain defects in the international application	<input type="checkbox"/>	Box No. VIII Certain observations on the international application
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Date of submission of the demand	Date of completion of this report
Name and mailing address of the IPEA/JP	Authorized officer
Facsimile No.	Telephone No.

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/JP2004/016095

Box No. I Basis of the report

1. With regard to the language, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.
- This report is based on translations from the original language into the following language _____ which is the language of a translation furnished for the purposes of:
- international search (Rule 12.3 and 23.1(b))
 - publication of the international application (Rule 12.4)
 - international preliminary examination (Rule 55.2 and/or 55.3)
2. With regard to the elements of the international application, this report is based on (replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report):
- the international application as originally filed/furnished
- the description:
pages _____ as originally filed/furnished
pages* _____ received by this Authority on _____
pages* _____ received by this Authority on _____
- the claims:
nos. _____ as originally filed/furnished
nos.* _____ as amended (together with any statement) under Article 19
nos.* _____ received by this Authority on _____
nos.* _____ received by this Authority on _____
- the drawings:
sheets _____ as originally filed/furnished
sheets* _____ received by this Authority on _____
sheets* _____ received by this Authority on _____
- a sequence listing and/or any related table(s) – see Supplemental Box Relating to Sequence Listing.
3. The amendments have resulted in the cancellation of:
- the description, pages _____
 - the claims, nos. _____
 - the drawings, sheets/figs _____
 - the sequence listing (specify): _____
 - any table(s) related to sequence listing (specify): _____
4. This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
- the description, pages _____
 - the claims, nos. _____
 - the drawings, sheets/figs _____
 - the sequence listing (specify): _____
 - any table(s) related to sequence listing (specify): _____

* If item 4 applies, some or all of those sheets may be marked "superceded."

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.
PCT/JP2004/016095

Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims <u>4-7, 10-11</u>	YES
	Claims <u>1-3, 8-9</u>	NO
Inventive step (IS)	Claims _____	YES
	Claims <u>1-11</u>	NO
Industrial applicability (IA)	Claims <u>1-11</u>	YES
	Claims _____	NO

2. Citations and explanations (Rule 70.7)

Document 1: Junko NAKAYAMA, "Preparation of α -Quinque- and α -septithiophenes and their positional isomers", Heterocycles, 1987, Vol. 26, No. 4, page 939

Document 2: JP 56-49304 A (Hodogaya Chemical Co., Ltd.), 2 May 1981, claims, patent publication page 2, upper right column, and lower right column

Claims 1 to 3

Document 1 cited in the international search report sets forth compounds [4] and [8] having a 1-4 dithiin ring structures having oligothiophenes on both side chains.

Therefore the invention set forth in claims 1 to 3 lacks novelty and does not involve an inventive step in the light of document 1.

Claims 4 to 6

It would be obvious for a person skilled in the art to focus on the electrochemical properties of the compounds set forth in document 1 to employ said compounds as the material for a charge-transporting layer

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.
PCT/JP2004/016095

Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

in an organic electroluminescent device.

Claims 8 and 9

Document 2 cited in the international search report, in the sections noted above, sets forth a method for producing acetyl thiophene derivatives having thiophene as a substitute for halogen, using aluminum chloride as a catalyst.

Therefore the invention set forth in claims 8 and 9 lacks novelty and does not involve an inventive step in the light of document 2.

Claims 7, 10 and 11

The reaction diagram shown on page 939 of document 1 discloses the second step and third step of this invention ("LR" corresponds to "thiocarbonylizing reagent").

Meanwhile, the aforementioned sections of document 2 set forth the first step of this invention.

It would therefore be easy for a person skilled in the art to combine the aforementioned first step with the aforementioned second and third steps to conceive of the method of synthesizing compounds of this invention.